LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his Correspondents. No notice is taken of anonymous communications.*]

The late Captain Brome

A SHORT time since I announced in your columns the decease of Captain Fred. Brome, late of Gibraltar, and well known to many of your geological readers for his great and successful labours in the exploration of the caves and fissures of the Rock. I then stated that Captain Brome had left a widow and eight children, wholly unprovided for; and this is literally the case. My object in this communication is to state that his numerous and warm friends in Gibraltar, and at Weedon where he died, have already commenced the collection of a fund for the relief and maintenance of his helpless widow and family, and to request that you will allow me space to say, that I shall be happy to receive and forward any contributions in aid of this fund.

Captain Brome was for twenty-two years Governor of the Military Prison at Gibraltar, from which post he was displaced towards the end of 1868. His removal to England last year with his large family necessarily involved him in considerable expense, incurred in the hope that his new appointment at Weedon might afford him a home and some prospect of providing for his children's education. These hopes, however, were destroyed in less than twelve months by the announcement that the prison at Weedon was to be disestablished. The anxiety lest he should thus be left without prospect of employment, and, as he feared, without any provision for the wants of his family, caused him such distress that, although a strong and energetic man and in the prime of life, he gradually sank, and died from mental depression on the 4th of March.

It is impossible to conceive a case more deserving of sympathy and support than that of his unhappy widow and children, or one more deserving of recognition by all lovers of science than that of Captain Brome, who had gratuitously devoted several years of his life, and the most unwearied personal labour, simply because he believed, and truly believed that he was promoting a scientific object.

Subscriptions will be received by me, and, I am kindly permitted to say, by Mr. W. S. Dallas, at the apartments of the Geological Society, Somerset House.

32, Harley Street, May 6. GEO. BUSK

Relations of the State to Scientific Research.—II.

SCIENTIFIC men are of three kinds: the young, the middle aged, and the old. It is difficult to say which needs help the most; but there is one work in which they can all severally take part, and from which they can each obtain that comfortable leisure which is the one thing needful for original research. That work is simply the work of teaching. And here let me not be misunderstood. By teaching science, I do not mean the miserable practices now carried on, but teaching on a scale commensurate with the great needs of a great nation, and in a way calculated to bring about the blessings that follow inevitably on true, thorough scientific knowledge.

To illustrate my meaning, let me take a particular science, chemistry, as an example. Of the whole population of England there will certainly be a certain number of men whose minds are so set on chemistry that they would be willing to accept, while in the prime of life, with gladness the offer of posts which, while taking up about half their time in teaching chemistry, would enable them to devote the entire other half to original work, and yet bring up their families in decency and order. What the exact number of such men would be, I do not care to know; it probably would never be very great; it certainly would never exceed the demand for men to fill chairs of chemistry at properly organised laboratories established at various points all over the kingdom.

Now a livelihood may be gained, and even a fortune made, by teaching, but this can never be done by working half time. But such a man as we are picturing must work half time only; and therefore the receipts from his actual teaching must be subsidised from elsewhere—the chair must be endowed by the Government, either local or imperial.

The occupant of such a chair would not be an idler. No idler would seek a post which would always entail a large amount of labour, and never would bring wealth. At the very worst, even if he did no original work, he would earn his salary by teaching. If he taught badly, that is a thing which can readily be recognised by competent persons, and he could be dismissed. The very desire of a man to take such a position would be of itself almost a guarantee that he would perform its duties properly, and bring forth the fruit expected of him. And calling to mind the well-known law of human nature that the more work a man has to do, the more he over-abounds in work, we may feel sure that the half life which teaching leaves to such a man will be filled with a whole life's exertion.

The work of such a man would lie almost exclusively in the way of systematic lectures and general superintendence of the laboratory. I need hardly say that that ought to be a small part only of the total teaching done in the place. There must be attached to the professor two, three, or more recognised assistants, who would be always in the laboratory, who would personally direct and nurse the students, who would carry on original work, partly on their own account and partly on behalf of their master, and who would receive a moderate fixed salary, sufficient to enable them to live without having to look to any other extraneous sources of income. Such men would of course be embryonic professors; and I know of no more pressing need than this, of finding livelihoods for young promising men in the interval between the studentship and the professorship. I weep when I think of how many admirable young men become outcasts to science for lack of these. It has been so with myself: full of zeal for science in my youth, and, what is more important, rich in the germs of large ideas, which I have since seen flourishing in other men's minds and bringing forth fruit of fame, I could find no resting place. I threw myself into practical money-getting life, with the hope that after a while my gains would provide me a comfortable afternoon of old age, in which I might return to my former love. I now have both time and money; but, alas! my mind has grown stiff in the ways of the world: the old ideas of my youth are now vain shadows which I cannot grasp. I find myself a wretched puddler, full of egotistic hobbies, productive of little oddities and trifling curiosities, but bringing forth nothing of real value or permanent worth. The young men make fun of me, and the chief men treat me with a courtesy which is at once patronizing and forced.

What is true of chemistry is, with minor differences, true of the other sciences. Under such a scheme as I have pictured, both young and middle-aged would be provided for. With a sufficient number of laboratories, some large and some small, some with eminent, some with useful men at their head, some with many, some with few assistants, it would come to pass that on the one hand the younger men would work under the beneficial influence of their chiefs, while on the other the men full of thoughts would find heads and hands near them to carry out their ideas. Is it not a crying shame that at the present time such a man as Huxley is completely isolated from the younger biological workers, and instead of, like Cuvier, having a large laboratory manned by an enthusiastic body of scholars, ready to dissect everything after its kind, is penned up in an abominable den in Jermyn Street, and distracted by the demands of triflers; has, in fact, to work upon the world through the bars of a prison cage? Is it not also a shame that one of the acknowledged foremost teachers of mathematics in Europe, in the focus of our national life, should feel himself compelled to forsake the work of teaching for a subordinate unscientific appointment in a University, when his right place would have been as instructor of the rising mathematicians of England?

But besides teaching, there is the task of examining the taught. And here again is a source of easy livelihood. I do not mean such kind of examinations as are carried on at present; that wretched system of papers, worked through at the rate of so many dozen a day and paid for at so much a hundred—work done by steam and ending in smoke. I mean a thorough system of *practical* examinations, carried on slowly and quietly, by a staff of professors and their assistants, and paid for in respect of the immense contingencies that hang upon the result and of the vast responsibilities of the examiners. I have not space to dwell on this; but it is a point which wants working out thoroughly and well. The task of examining ought to be one of the richest sources of income to a large number of scientific men, instead as now the odd pence of a few.

I maintain, then, that teaching and examining combined would support all the young and middle-aged scientific men in this country that have sound reasons for devoting themselves to a scientific life, and support them honourably and productively.

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Touching the old, little need be said. Every man who has filled one of the above posts worthily while he had force to work ought to be pensioned when he gets old. The matter lies in a nutshell and needs no more words. But there will always be a few old men who for their eminence and their services would require special provision, and that not so much on their own account as for the sake of the younger men of their time. There ought to be some *rewards* for a scientific life, but they should be few and very carefully allotted. At all times, moreover, there will be a few, a very few men whose genius ought to receive plenteous and present recognition. Such men with the older distinguished men might form a small consulting body whose services in the way of advice would be at the command of Government, and the members of which would draw salaries on a scale feebly imitative of those of other Government officials. I believe the legal advisers of Government are pretty well paid, and yet scientific advice is altogether unrewarded. Such men would be then at liberty to work out their ideas; the best means being, of course, taken to choose those men only into whose soul the iron of science has entered, men whom it is impossible to keep from work.

Two more remarks and I have done. It may be objected that this scheme would make scientific success in large measure dependent on the power of teaching, and that original work would thereby go to the wall. I reply that that is altogether a fallacy, and if I had time I could show it.

Lastly, the question of expense of apparatus and other means of inquiry is altogether a secondary one. Government ought of course largely to provide these; but there would be no difficulty in distributing them on a plan similar to that of the grant to the Royal Society. It is the question of "scientific careers" that is the pressing one, and the one most difficult to settle.

In Sicco

Tails of Comets

In Nature of 16th December, Prof. Tait advances the opinion that the tail of a comet consists of nothing but meteorites; mentioning in proof of this that the orbits of the August and November meteors have been determined, and found to be identical with those of two known comets. I do not question the importance of this most remarkable fact, but I think the older opinion, that the tail of a comet is gaseous, is demonstrably true. Sir John Herschel, in his "Elements of Astronomy," remarks with wonder how the tail, in the comet's perihelion passage, is *whisked round* in apparent defiance of the law of inertia, so as always to keep pointing away from the sun. Were the comet an assemblage of meteorites this would be impossible; the tail would, in that case, always lie parallel to the direction of the comet's orbit. The fact just mentioned as to the perihelion motion of the tail is, to my mind, a conclusive proof that the tail is not formed once for all, but is a cloud which is constantly in process of formation, and as constantly evaporated. This view is supported by the fact that Halley's Comet was seen to increase in apparent magnitude as it receded from the sun, in consequence, as was suggested, of the conversion of invisible vapour into visible cloud as the heat grew less intense.

Dr. Tyndall's suggestion, that the tail may be a cloud produced by actinic precipitation from an invisible atmosphere is, to my mind, the only plausible suggestion yet made on the subject.

Joseph John Murphy

Old Forge, Dummurry, Co. Antrim, May 4

Left-Handedness

In reference to the letters which lately appeared in your periodical on "Right and Left-handedness," I beg to draw your attention to some remarks of Professor Hyrtl, the celebrated anatomist of Vienna, which were published several years ago, and the substance of which I now quote from the 4th edition of his "Handbuch der topographischen Anatomie," 2 vol. 1860.

"It happens in the proportion of about two in a hundred cases that the left subclavian artery has its origin *before* the right, and in these cases left-handedness exists, as it also often actually does in the case of complete transposition of the internal organs (Professor Hyrtl describes two cases), and it is found that the proportion of left-handed to right-handed persons is also about 2 to 100. Professor Hyrtl thinks that ordinarily the blood is sent into the right subclavian under a greater pressure than into the left, on account of the relative position of these vessels, that in consequence of the greater supply of blood the muscles are better nourished and stronger, and that therefore the right extremity is more used. In cases of anomalous origin of the left subclavian, &c., the reverse occurs, and therefore the left hand is employed in preference.

Kensington, May 3 Adolf Bernhard Meyer

Strange Noises heard at Sea off Grey Town

In submitting the following to the notice of your readers, I am guided only by the desire of seeking a solution of what to me and to many others appears a very curious phenomenon. The facts related can be vouched for by numbers of the officers and crews of any of the R. M. Company's ships.

I must premise that this phenomenon only takes place with iron vessels, and then only when at anchor off the port of Grey Town. At least, I have never heard of its occurring elsewhere, and I have made many inquiries.

Grey Town is a small place, containing but few inhabitants, situated at the mouth of the river St. Juan, which separates Nicaragua from Costa Rica, and empties itself into the Atlantic, lat. 10° 54′ N., and long. 83° 41′ W. In this town there are no belfries or factories of any kind.

Owing to a shallow bar, vessels cannot enter the harbour or river, and are therefore obliged to anchor in from seven to eight fathoms of water, about two miles from the beach, the bottom consisting of a heavy dark sand and mud containing much vegetable matter brought down by the river. Now, while at anchor in this situation, we hear, commencing with a marvellous punctuality at about midnight, a peculiar metallic vibratory sound, of sufficient loudness to awaken a great majority of the ship's crew, however tired they may be after a hard day's work. This sound continues for about two hours with but one or two very short intervals. It was first noticed some few years ago in the iron-built vessels *Wye*, *Tyne*, *Eider*, and *Danube*. It has never been heard on board the coppered-wooden vessels *Trent*, *Thames*, *Tamar*, or *Solent*. These were steamers formerly employed on the branch of the Company's Intercolonial service, and when any of their officers or crew told of the wonderful music heard on board at Grey Town, it was generally treated as "a yarn" or hoax. Well, for the last two years the company's large Transatlantic ships have called at Grey Town, and remained there on such occasions for from five to six days. We have thus all had ample opportunity of hearing for ourselves. When first heard by the negro sailors they were more frightened than astonished, and they at once gave way to superstitious fears of ghosts and Obeihism. By English sailors it was considered to be caused by the trumpet fish, or what they called such (certainly not the *Centriscus scolopax*, which does not even exist here). They invented a fish to account for it. But if caused by any kind of fish, why only at one place, and why only at certain hours of the night? Everything on board is as still from two to four, as from twelve to two o'clock, yet the sound is heard between twelve and two, but not between two and four. The ship is undoubtedly one of the principal instruments in its production. She is in fact for the time being converted into a great musical sounding board.

It is by no means easy to describe this sound, and each listener gives a somewhat different account of it.

It is musical, metallic, with a certain cadence, and a one-two-three time tendency of beat. It is heard most distinctly over open hatchways, over the engine-room, through the coal-shoots, and close round the outside of the ship. It cannot be fixed at any one place, always appearing to recede from the observer. On applying the ear to the side of an open bunker, one fancies that it is proceeding from the very bottom of the hold.

Very different were the comparisons made by the different listeners. The blowing of a conch shell by fishermen at a distance, a shell held to the ear, an æolian harp, the whirr or buzzing sound of wheel machinery in rapid motion, the vibration of a large bell when the first and louder part of the sound has ceased, the echo of chimes in the belfry, the ricocheting of a stone on ice, the wind blowing over telegraph wires, have all been assigned as bearing a more or less close resemblance; it is louder on the second than the first, and reaches its acme on the third night; calm weather and smooth water favour its development. The rippling of the water alongside and the breaking of the surf on the shore are heard quite distinct from it.

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